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THE AVICULTURAL SOCIETY

The Avicultural Society was founded in 1894 for the study of British and foreign birds in the wild and in captivity. The Society is international in character, having members throughout the world.

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AVICULTURAL MAGAZINE

THE JOURNAL OF THE AVICULTURAL SOCIETY

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FROM THE CHAIRMAN

I firstly have to apologise for the late publication of the magazine. We hope to have nos. 3 and 4 out more promptly to complete this volume. I would like to thank the contributing authors, whose efforts have allowed us to publish, as usual, an international magazine with a balance of articles from zoological institutions and private aviculturists. As ever, we need you to submit articles if this is to continue. For those aviculturists with interesting experiences to report (that's all of us!) but who do not see themselves as authors, Rosemary Wiseman has offered whatever help you may need with putting your ideas into a publishable form. She is happy to expand notes or even telephone conversations into an article. You can contact Rosemary preferably by email at ro.wiseman@virgin.net or on 0208 9402589.

We urgently need a volunteer or volunteers to take on the vital role of Secretary/Treasurer. Peter Stocks has served ably in this capacity for a number of years, but now needs to hand over the reins. The post currently involves acting as Membership Secretary and Treasurer, and could be split if necessary, so I would be delighted to hear from anyone interested in taking on either role or both. Please contact me initially at nigelhewston@btinternet.com

Mark Sproule has updated the membership pages on the website to make joining or renewing by Paypal much simpler and quicker. We hope that existing members find this helpful, and that it will help with recruitment of new members – please spread the word! We have also introduced a new membership rate for students to encourage younger birdkeepers to join. We are working on a further initiative to help younger keepers develop their skills and interest, which I hope to announce in the next issue.

The Society plans to hold the Spring 2014 social meeting and AGM at Lotherton Hall Bird Garden in Yorkshire, hopefully combined with a visit to Richard Green, who has kindly invited us to revisit his impressive and very successful collection of softbills and other birds. The date will be published in the next magazine, and on the website as soon as it is confirmed.

Finally, I would like to thank those members who contacted me following my appeal in the last magazine for your ideas on the development of the society. We hope the enclosed questionnaire will encourage more members to contribute to this process. Please return to Geoff Masson by post, or complete and return the form online at www.avisoc.co.uk/member-survey/

HAVING BEEN AN AVICULTURIST FOR FIFTY YEARS
Part 4

by Bernard Sayers

It was usually my practice when visiting Stagsden to include two other collections so making a very full and enjoyable day. The second was just over the county border into Buckinghamshire. My trip would take me to the quaint village of Olney famed for having what is claimed to be the widest village street which, each year, on Shrove Tuesday, is the location for the famous pancake race. A narrow turning off Olney's main street took me to the picturesque village of Weston Underwood, the home of Christopher Marler. Members will be aware that in addition to all of his other activities Christopher served for many years as Chairman of the Avicultural Society and, of course, is now our President.

Christopher has had a lifelong interest in natural history and has kept and, in many cases, bred a vast number of bird and mammal species. In fact I think his involvement in aviculture is longer than mine although it has to be said that the years have been kinder to him than they have to me! His lovely old stone manor house is on one side of the village street and opposite one enters what presumably had been an extensive kitchen garden enclosed with high stone and brick walls. Entry is through some imposing, wrought iron gates and then opens up a wonderland of immaculately kept gardens, paddocks many with pools, and aviaries. Although Christopher has kept a wide range of species four groups predominate i.e. waterbirds, birds of prey, ungulates and exhibition domestic livestock.

The walled garden had large, metal-framed aviaries against two facing sides and over the years these were home to many of the largest and most imposing species of raptors. I have seen most of the world's vultures at Weston Underwood, although not all at the same time. Amongst them I can recall Andean Condors *Vultur gryphus*, King *Sarcoramphus papa*, Griffon *Gyps fulvus*, Ruppell's Griffon *G. rueppellii*, Cinereous or Eurasian Black Vulture *Aegypius monachus*, Lappet-faced *Torgos tracheliotus*, Hooded *Necrosyrtes monachus*, Turkey *Cathartes aura*, Yellow-headed *C. melambrotus*, White-headed *Trigonoceps occipitalis* and a superb pair of Bearded Vultures or Lammergeiers *Gypaetus barbatus* (literally translated as lamb killer).

I have only ever seen five Lammergeiers in UK collections - Christopher's pair, a pair at Bristol Zoo in the circular bird of prey aviary it used to have and the one London Zoo received in exchange (I think from Moscow Zoo) in 1959. I know of several European collections, both public and private, which keep and breed this spectacular species, which has always been very rare in the UK. So far as I am aware there is no published account of it having been bred here, but I have been told that there are some in a private collection in Wales, where they have bred successfully.

Other aviaries at Weston Underwood contained many of the spectacular species of eagles including the Golden *Aquila chrysaetos*, White-tailed Sea Eagle *Haliaeetus albicilla*, African Fish Eagle *H. vocifer*, Verreaux's or Black Eagle *A. verreauxii* and, of course, Christopher's well-known breeding pair of Bald Eagles *H. leucocephalus*. Christopher must be congratulated for being first in the UK to breed this emblem of the United States (see Vol. 110, No.2, pp.49-53 (2004)). The female, which arrived at Weston Underwood in 1980 from Canada as an injured, brown-headed immature bird (on a salvage permit), with her mate who was hatched at Frankfurt Zoo in Germany, usually raised one or two young a year and, in exceptional years, raised three young in a nest, so that by the time the female died in 2011, the pair had raised a record-breaking 30 or more young.

Thereabouts central to the walled garden were two huge aviaries something like 100ft (30m) long and very wide and very high. These housed many species of waterbirds including full-winged pelicans, a flock of the lovely Scarlet Ibis *Eudocimus ruber* and other species of ibis, Milky Storks *Mycteria cinerea* and Painted Storks *M. leucocephala* which bred there for the first time in the UK. Most of the rest of the walled garden was given over to paddocks, many of which contained a pool. These housed an incredible array of species and I can recall many rarities. I well remember seeing my only leucistic mutation cassowary (I think it was a Double-wattled or Southern *Casuarius casuarius*) and my first Kelp Geese *Chloephaga hybrida* and Siberian White Crane *Grus leucogeranus*. For many years Christopher made something of a speciality of cranes and I can remember Crowned *Balearica regulorum* and *B. pavonina*, Sarus *G. antigone*, Demoiselle *Anthropoides virgo*, Stanley or Blue *A. paradiseus* (which bred successfully), Lilford's *G. grus* (the eastern form of the Common Crane - the last pair I knew of in the UK at the Cotswold Wildlife Park was tragically killed by a Fox *Vulpes vulpes*) and a particularly handsome trio of Wattled Cranes *Bugeranus carunculatus*,

At the end of the walled garden bordering the road several large enclosures housed breeding flocks of Chilean *Phoenicopterus chilensis*, Caribbean *P. ruber* and Greater Flamingos *P. roseus* and a lovely pair of the spectacular Saddle-billed Stork *Ephippiorhynchus senegalensis* whilst some old, gnarled fruit trees were home to a small flock of Green-winged Macaws *Ara chloropterus*. Christopher's collection was one of the few in the world in which all six forms of flamingos could be seen, for as well as the three above flamingos, Christopher also had Lesser *P. minor*, Andean *P. andinus* and James's Flamingos *P. jamesi*. Flamingos live and breed in some of the most inhospitable climates on earth. They seem able to tolerate extreme heat or cold, hot water and water with a high salt or soda content.

The Andean and James's Flamingos inhabit lakes high in the Andes where they encounter huge variations in temperature and severe winds. So in spite of their fragile appearance flamingos are amazingly tough and very long-lived. A life span of 40 years in captivity is by no means unusual.

A gap in the wall of the walled garden opened up into two long, narrow paddocks, one of which housed Indian Blackbuck *Antilope cervicapra* and the other Dall Sheep (then called Dall's Sheep) *Ovis dalli* from the Rockies. One then passed an aviary housing a small group of Rockhopper Penguins *Eudyptes chrysocome* before another pair of wrought iron gates led into the woodland garden. There was a large pool just inside the gates, mown grass rides between the trees and a gazebo in the form of a small, classical temple. Dotted around this extensive area, in which birds such as Marabou Storks *Leptoptilos crumeniferus* and Crowned Cranes wandered at liberty, were many aviaries, some metal framed, some rustic and some of traditional timber construction. A row of rustic enclosures housed the owl collection of which the piece de resistance was an incredibly rare Blakiston's Fish Owl *Keptupa* (*Bubo*) *blakistoni*.

This remains the only example of this owl I have ever seen. It was received in exchange for a shipment of waterfowl from a zoo in Hokkaido, northern Japan (a portrait of it from a painting by R. David Digby was the frontispiece of Vol. 82, No. 2 (1976)). This species, which is rare in the wild, inhabits the riverine forests of the Russian Far East, North-East China, North Korea and North Japan. Some authorities maintain that it is the largest of the owls, but it is a close run thing with the largest races of the Eurasian Eagle Owl *Bubo bubo*. This imposing bird, with its huge bushy ear-tufts, lived in Christopher's collection for several years and when it died it was preserved and mounted by a taxidermist. Over the years many species and domestic forms of birds occupied the aviaries in the woodland garden including blue crowned pigeons, yellow-billed and wood storks, glossy starlings, toucans and many breeds of exhibition poultry.

Retracing one's steps back to the car park the paddocks contained at various times yaks *Bos grunniens*, Bactrian Camels *Camelus bactrianus*, American Bison *Bison bison*, alpacas *Vicugna pacos* and albino Bennett's Wallabies *Macropus r. rufogriseus*. And the tour has not ended yet because down an estate road, past fields of Christopher's show winning belted Galloway cattle, was the waterfowl valley. This extensive area surrounded by a fox-proof fence and with a stream running through it contained large flocks of waterfowl. Some flocks of geese were left full winged and looked magnificent if they took off and wheeled around the valley. I guess this practice would now be illegal if the species were not indigenous. So ends a tour of Christopher Marler's private collection at Weston Underwood. It has only been possible to mention some of the species I saw there over the years. In fact every time I think back I can remember more like the fennec foxes *Vulpes zerda* and the Fallabella horses *Equus caballus*; true miniature horses so named because they occurred naturally on the ranch in Argentina which belonged to the Fallabella family. After over seventy years actively involved in keeping and breeding countless species and domestic forms of livestock Christopher's enthusiasm is still undiminished. However some changes have been necessary. He used to occasionally open his collection to the public, but this is no longer possible.

Hopes are high that a group of six White Pelicans *Pelacanus onocrotalus* will soon breed. Unlike most zoos which feed saltwater fish to their pelicans Christopher only feeds freshwater fish. Certainly Tierpark Berlin which, for many years, has enjoyed considerable success in breeding several species of pelicans attributes this to the use of freshwater fish to feed their flock. There is still a small flock of lesser flamingos at Weston Underwood and some interesting waterfowl including Giant Canada Geese *Branta canadensis maxima*, Emperor Geese *Anser canagicus*, Mandarin Ducks *Aix galericulata*, Australian Shelduck *Tadorna tadornoides*, Eyton's Tree Duck *Dendrocygna eytoni* and the bizarre Magpie Goose *Anseranas semipalmata* from Australia which only has partially webbed feet.

Mammals are still represented by a herd of llamas *Lama glama*; a large mob of albino Bennett's Wallabies and the waterfowl valley is now home to a herd of about twenty white mutation Fallow Deer *Dama dama*. There is also what is probably the only group of gayal *Bos frontalis* in the country. These huge oxen are the domesticated form of what is variously called the Indian bison, gaur or seladang and they replace the domesticated water buffalo *Bubalus bubalis* in parts of Assam, Nagaland, Bhutan etc. And has the collection reached a dead end? Not a bit of it because Christopher is planning to import some unusual white yaks from an Eastern European collection. Wild yaks which are noticeably bigger than their domestic cousins, are naturally black, but domesticated animals range from black to brown to white and pied combinations of these colours.

I regard it as a great privilege to have been allowed access to Christopher Marler's collection over the years since, without doubt, it is one of the finest private collections to have existed during the second half of the twentieth century. Christopher has always been very patient in imparting a wealth of information during our conversations and, in particular, I remember some advice he offered during our first meeting. He explained that in livestock husbandry there would always be deaths, disasters and problems no matter how well-run the collection is. When these occur it is important to quickly learn any lessons and move on. If the keeper dwells too long on the negative aspects it will destroy much of the enjoyment of keeping and breeding livestock. The hope is that every year something nice will breed and there will be positive experiences and this is where the keeper should concentrate his/her thoughts. Wise words indeed and how many times have I seen folk simply give up after a few setbacks? And finally I must pay tribute to Christopher's generous help with my reference collection of captive-laid eggs. To his great credit he was quick to see the merits of the project and offer his support.

I would return home from Weston Underwood via Bedford so that I could spend a couple of hours with Norman (N. D.) Cooper. Close to the statue of John Bunyan, in Bedford, in De Pary's Avenue, a boulevard lined with imposing Victorian and Edwardian houses, Norman and his wife owned two, large, adjoining houses which had been converted into flats. They occupied the ground floor flat of one of the houses and the income from the other flats had enabled Norman, who had been an officer in the RAF, to retire early.

Norman was of medium height and stocky build with a mane of white hair. He played a major role in the formation of The Parrot Society UK and for many years shouldered much of the responsibility of running the organisation. If my memory is correct, he served as Chairman, Secretary and Editor of the society's magazine. It has to be said that not everybody got on well with Norman, mainly because he had little time for euphemisms or diplomacy. If he held a view he would express it openly and if this happened to involve strident criticism of those to whom he was speaking then so be it. However, far from finding this offensive, I welcomed this quality because I always knew exactly where I stood with him. Norman and I had some fairly spirited arguments and disagreements during our many years of friendship, but we never fell out.

Other qualities I admired in Norman were his conscientiousness, reliability and meticulous attention to detail. He had no time for empty promises and unreliability and if anyone let him down they were likely to receive a broadside - with both barrels! If Norman undertook to do something you knew it would be done promptly and efficiently.

Invariably when I visited Norman he was sitting at a table piled high with Parrot Society paperwork and he would be diligently and methodically working through it. In fact to Norman should go a major share of the credit for building the base which enabled it to grow into the thriving and respected organisation it is today. Regrettably Norman's reluctance to take prisoners gradually eroded his support and eventually he was voted out of office. Although I understood the situation, I felt this was a very sad fate for one who had contributed so much.

The two houses owned by Norman and his wife had large rear gardens surrounded by high brick walls. These were largely filled by a complex of countless narrow flights of varying lengths. There was also a number of larger aviaries for Mrs Cooper's stock of canaries, White-cheeked Turacos *Tauraco leucotis* and Purple Glossy Starlings *Lamprotornis purpureus* and there was a birdroom for Australian finches and Cuban Olive Finches *Tiaris o. olivaceus*. The blocks of aviaries, although unpretentious were uniform, neat and very well maintained.

The shortest aviaries, which were about 6ft long, were occupied by lovebirds *Agapornis* spp. This was in the heyday of interest in lovebird mutations, particularly of the peach-faced *A. roseicollis* and Norman would proudly show me the latest colour forms and blind me with explanations of their genetics. I must confess that I have never been much interested in mutations and whilst I liked a few and took notice of what I was told about them most appeared unattractive to me and I promptly forgot about them. Clearly, unlike me, Norman was very interested in breeding mutations and he also kept and bred Indian Ringneck Parakeets *Psitticula krameri manillensis*. However I only remember seeing lutinos and blues in his aviaries and this was of course long before the explosion of myriad, composite mutations in Ringneck Parakeets. Norman was also the first to show me the white-faced Cockatiel *Nymphicus hollandicus*. I do not think they initially occurred in his aviaries, but I seem to remember he bought the founder stock from the collection where they arose and was either the first or one of the first to establish this mutation. More spectacular and stunningly beautiful were Norman's lutino Galahs or Roseate Cockatoos *Eolophus roseicapilla*. I had heard of this mutation and seen photographs, but I saw my first live examples at Bedford. In this mutation the pink breast is retained, but the normally grey wings and tail become pure white - an absolute picture of beauty and elegance.

Blocks, of long, narrow aviaries contained pairs of most of the Australian broadtailed parakeets such as Rock Pebblers *Polytelis anthopeplus*, Barnard's *Barnardius b. barnardi*, Port Lincolns *B. z. zonarius*, Twenty-eights *B. z. semitorquatus*, Crimsonwings *Aprosmictus e. erythropterus* and various rosellas *Platycercus* spp. and there were some lovely pairs of Barraband's *Polytelis swainsonii* and Princess of Wales' parakeets *P. alexandrae*. Some aviaries against a wall housed Illiger's Macaws *Primolius maracana* and African Grey Parrots *Psittacus e. erithacus* (which parent-reared their young - if only more breeders would allow this to happen!). And Norman's great favourites were his black cockatoos. I still have memories of being shown some young Banksian Cockatoos *Calyptorhynchus banksii* bred at Bedford.

Norman always allowed me to have his dud eggs and avicultural casualties for my reference collections and was a long standing, reliable and helpful friend. I used to enjoy a cup of tea in his front room and discussing the personalities and politics of the parrot world. Alas Norman is no longer with us and now I must rely on memories.

Now to return to the outstanding pheasant collection from which Cliff and I obtained birds and I have obtained reference material. Close to the little Norfolk town of Holt is the hamlet of Kelling where there used to be a marvellous bird garden called Kelling Park Aviaries. This was established by Jack Rawlings who had made his fortune from Rawlplugs and Rawlbolts. Jack was a large man who, like most successful businessmen I have met, had a restless energy and a short attention span. He would concentrate on addressing a topic or solving a problem and once he had done so would move immediately on to something else: he was certainly not one for a general chat.

Although Kelling was perhaps not the biggest collection I have seen it was, to my mind, certainly one of the best. Everything was done to a very high standard with little regard to cost and the attention to detail was extraordinary. The materials used throughout were cedarwood framing, reed thatch, cedar shingles, cedar cladding, Georgian wired glass and natural stone and everything was executed by the best tradesmen. In fact some of the aviaries appeared more the work of cabinet makers than joiners!

Kelling is almost in sight of the sea on the north coast of Norfolk and is subject to bitingly cold winds in winter. Jack had a novel solution to this although few could afford to copy it. The site was sculpted into a flat-bottomed hollow several acres in extent and this was sheltered by high earth embankments to the North and East. To create further shelter the site was surrounded and intersected by about 10ft high, dense beech hedges. This created a micro-climate because the cold wind jumped over this sheltered depression.

As best my threadbare memory will permit I will now conduct the reader on a guided tour. Just inside the gate was a planted aviary with a circular pool in the middle and this had a classical sculpture as a fountain centrepiece. This aviary was home to some medium sized waders and although I cannot recall a full list of the stock it contained I can remember Green Herons *Butorides virescens* and Squacco Herons *Ardeola ralloides*, Black Crakes *Amaurornis flavirostris* and Red and White Crakes *Laterallus leucopyrrhus*.

Turning to the left was an extensive complex of pheasant enclosures which were unlike the traditional accommodation for these birds. The enclosures occupied three stepped terraces and were open-topped so the pheasants had to be either brailled, wing-clipped or pinioned. Each enclosure was very large with an immaculately kept rectangular lawn surrounded by a narrow border of evergreen shrubs. Anyone who has kept eared-pheasants *Crossoptilon* spp, or Himalayan Monal Pheasants *Lophophorus impeyanus* will know what industrious diggers they are and how efficiently they will transform an aviary floor into a vision of the Somme after hostilities so how on earth Jack Rawlings' staff managed to keep the lawns so immaculately is something of a mystery. The fencing which surrounded these enclosures consisted of a low, brick wall which had been roughcast and about 8ft (approx. 2.4m) of wire supported by metal standards and these were topped with overhangs. A paved path ran along one end of the enclosures and the shelters were let into the retaining wall for the next terrace. Rather than viewing the pheasants from outside these enclosures visitors were conducted through them. Many pheasants tend to be nervous and prone to skulk, but not so at Kelling. Jack employed an ex-gamekeeper to care for his pheasants and this gentleman with patience, quiet conversation and pockets well filled with peanuts and sultanas had tamed most of the birds so that they would strut in front of the visitors.

The top terrace of the pheasant complex contained tragopans and in those days only the Satyr *Tragopan satyra* and Temminck's *T. temminckii* were represented in British collections. The other two terraces housed Blue Eared *C. auritum* and Brown Eared Pheasants *Crossoptilon mantchuricum* (this was before Jersey Zoo had established the White Eared *C. crossoptilon*), Swinhoe's *Lophura swinhoei*, Edwards's *L. edwardsi*, Siamese *L. diardi* and Bornean Crested Firebacks *L. ignita nobilis*, Grey *Polyplectron bicalcaratum* and Palawan Peacock Pheasants *P. napoleonis*, Elliot's Pheasant *Syrmaticus ellioti* and several other species. However, it was the Copper Pheasants *S. soemmerringi* which were the most noteworthy. Kelling remains the only collection anywhere in the world where I have seen all five races housed in adjacent aviaries which made comparisons easy. The five races are the Scintillating *S. s. scintillans*, Shikoku *S. s. intermedius*, Pacific or Hondo *S. s. subrufus*, Soemmerring's *S. s. soemmerringii* and Ijima's *S. s. ijimae*. Copper pheasants are aptly named because their plumage shimmers like burnished copper in the sun and with their intricate markings, long tapered tails and sleek build they are, to my mind, some of the most elegant of the pheasants. Sadly there is a dark side to their character. Copper pheasants seem to be particularly prone to eating their eggs and many of the cocks are inveterate wife beaters. These problems can be so serious that breeders find it necessary to house the cock and hen separately in adjoining aviaries and only allow them together for short periods in order to mate. Even copper pheasant chicks can be aggressive. I was not aware of these characteristics when I visited Kelling so didn't enquire what their experience had been. It may have been that since their aviaries were so big and there was ample cover they may have been able to keep pairs together. Certainly they were in pairs when I saw them. Sadly, with the exception of the Ijima's which has a diagnostic white rump, I would now be hard pressed to differentiate the other races; the memory dims after thereabouts forty years and I do admit to suffer with terminal amnesia!

Retracing one's steps back to the centre of the gardens there was a toroidal pool with a thatched shelter on the central island. Here lived a pair of Black Swans *Cygnus atratus* and a flock of Caribbean Rosy Flamingos *Phoenicopterus r. ruber*. Then past a small cafeteria with a pair of Keel-billed or Sulphur-breasted Toucans *Ramphastos sulfuratus* in a lofty planted aviary built against one end. Adjacent to the other end were two very large aviaries with a conical roofed shelter in the centre. These contained two very imposing species; pairs of Javan Green Peafowl *Pavo muticus* and Malay Great Argus Pheasants *Argusianus argus*. In the corner of the grounds alongside the drive up to Jack Rawling's house was a large paddock with a pond. In this were flocks of Chilean Flamingos *P. chilensis*, Red-breasted Geese *Branta ruficollis*, Ross's Snow Geese *Anser rossii* and a pair of Grey-necked Crowned Cranes *Balearica regulorum gibbericeps*.

Jack Rawlings' house was quite large and I would guess it was built between the First and Second World Wars. It was typical of the generously proportioned houses of the period and was otherwise unremarkable. In front was a gravel parking area for numerous vehicles and, facing the house, this was bounded by a long "L" shaped block of aviaries with a thatched birdroom in the centre of the long wing. These aviaries were mostly about 8ft cubes with both sides and back of Georgian wired glass. The raised floors were covered with peat and there were stone pillars between the aviary fronts. The fronts were of square meshed wire painted black and there were cedar-shingled canopies running along the top of the fronts. This gave the effect similar to looking in shop windows.

As one faced the complex, the far left-hand aviary was much bigger and contained a pair of Rufous Motmots *Baryphthengus martii* and the shorter wing of the "L" on the right-hand side consisted of larger, planted aviaries housing various softbills - I can remember Joyful Greenbuls *Chlorocichla laetissima* and a very large, thrush-sized bulbul which I think was labelled Straw-crowned *Pycnonotus zeylanicus*. The remainder of the aviaries housed what was probably the most extensive collection of lories and lorikeets that existed anywhere in the world at that time even although compared to those now at Loro Parque or Weltvogelpark Walsrode or Jurong Birdpark it would be regarded as quite modest. Of course, in the 1960s not nearly so many species were available in aviculture and ironically some which were present have now become rare. I cannot pretend to remember all of the species in this complex, but I can recall Perfect *Trichoglossus euteles*, Violet-necked *Eos squamata*, Moluccan *Eos bornea*, Swainson's *T. haematodus moluccanus*, Purple-naped *Lorius domicellus*, Yellow-backed *Lorius garrulus flavopalliatus*, Chattering *Lorius g. garrulus*, Forsten's T. *h. forsteni*, Mitchell's *T. h. mitchellii*, and several races of Black-capped *L. lory*. There was a pair of Purple-bellied or Louisade Lories *Lorius hypoinochrous* which remain the only ones I have ever seen although I believe Chester Zoo later kept and bred this rare species. Also, in a corner aviary resided an exquisite pair of diminutive birds which were somewhat poetically labelled as lory of Bonthain. This was my first sight of what is now known as Meyer's Lory *T. flavoviridis meyeri* and this predated the commercial importation of this species by some ten years.

Although the lory aviaries were very sheltered and all had a sturdy nest-box hanging on the back wall I am not sure if problems were encountered in the winter because they had no heated houses and we experienced some very cold winters in this area. In fact in 1963 we suffered almost ten weeks of unbroken frost night and day and two nights running we recorded -20°C (-4°F) in our garden. It is true that lories are quite hardy birds but since they eat no dry food their nectar and fruit freezes. I have kept lories intermittently for fifty years and have always provided them with a shelter maintained at 10°C (50°F). They are let out every day even in the snow, but they always have the option to retire to their heated shelter and I have a routine of shutting them in at night. Also, of course, they are fed in their shelter where the nectar and fruit does not freeze. In my view aviculturists should always provide accommodation in which their birds are comfortable rather than testing what they can survive.

The other feature of the Kelling lory aviaries which I found difficult to understand was that there were no individual doors to the outside. Instead the attendant had to walk through the aviaries to service them. Now most lories quickly become tame, even wild caught adults and, once they have lost all fear of their keeper, a fair proportion then become spiteful, particularly when they are breeding. In fact although the lories I keep now are very tame, playful and affectionate they are also prone to bite-hard! For this reason I go in with them as little as possible by feeding them in swing feeders and shutting them in the outside aviary when I clean their shelter and vice versa. Invariably if I do go in with them I emerge with perforated ear lobes or bitten arms although, without doubt, the lories meant no harm and viewed their actions as great fun. So for these reasons, the aviary design at Kelling was less than ideal.

Adjoining the Rawlings' house was a tropical house which, although built to a very high standard was less than ideal and it was eventually converted to part of the family living area. Certainly the tropical house had very large windows, but it had a thatched roof which, of course, admitted no light. The result was a rather dank and gloomy house in which neither the plants nor the birds did as well as they might. However, in its relatively short life it housed some wonderful species including Resplendent Quetzals *Pharomachrus mocinno*, Guianan Cock-of-the-Rock *Rupicola rupicola*, hummingbirds and kingfishers.

At the rear of the house was an extensive rock garden which was beautifully planted and was enlivened by several pools and cascades. Alongside this garden was a long metal framed aviary housing an immaculate pair of Hyacinthine Macaws *Anodrhynchus hyacinthinus*. So often when one sees this highly sensitive macaw exhibited in zoos and bird gardens the appearance is disfigured as a result of feather plucking. However, the pair at Kelling were always feather perfect when I saw them.

Finally, in a quiet corner of the gardens a fruit cage had been converted into a huge, planted aviary for British birds. My memory is somewhat hazy concerning the species it contained although I can recall some nice finches, Pied Wagtails *Motacilla alba yarrelli* and a small flock of Bohemian Waxwings *Bombycilla garrulus*. One corner of this aviary had been partitioned off and was home to a lovely pair of Blue-streaked Lories *Eos reticulata*; the first I had ever seen. Of an incredibly richly coloured family I really think that the Blue-streaked is one of the most exquisitely beautiful. I have subsequently kept this species and, although they thrived well enough, to my shame I never bred them. In fact after breeding well in a in a number of UK collections for several years most of the stock was exported to Canada and Brazil and this species has now become very scarce in this country. Sadly, without concerted action to bring it back from the brink this wonderful species will almost certainly be lost to UK aviculture. And what a tragedy that would be!

Near to the aviary containing British birds was a row of metal framed cockatoo aviaries. These contained the species which were being imported in large numbers at that time such as Umbrella *Cacatua alba*, Moluccan *C. moluccensis*, Triton *C. galerita triton*, Lesser Sulphur Crested *Cacatua s.sulphurea* and other cockatoos.

Although there were other smaller enclosures housing various other birds at Kelling I have now covered most of the collection. However an important omission thus far is paying tribute to the wonderful gardens into which the aviaries were set. The main lory aviaries were viewed over a broad border which in summer was planted with hundreds of tuberous begonias and for the spring the planting changed to polyanthus and bulbs. Indeed whenever visiting Kelling this border was an absolute riot of colour. The rest of the gardens were planted with camellias, rhododendrons and Exbury azaleas. There were huge beds of these choice shrubs which must, in total, have contained many hundreds if not thousands of plants. These shrubs, being evergreen, always look tidy and provide a year round presence although, for much of the year, they do perhaps lack interest. But what a transformation in April, May and June when the show of flowers at Kelling was nothing short of breathtaking.

Jack Rawlings seemed to have a restless spirit and after building Kelling into a truly magnificent collection he sold the complete set-up and moved to Sussex where he established a waterfowl collection which was, of course, beautifully executed. He was only in Sussex for a few years and then moved on yet again to Zimbabwe where I lost contact with him.

Kelling Park was run as a country club by the new owners and the bird collection was taken over by Tim Driver. Tim had great enthusiasm and tried to not only maintain the collection but expand it. Sadly, the simple truth was that without Jack Rawlings' considerable wealth to support it Kelling was not viable and it went into a progressive decline. After Tim Driver several other people including Mike Bignold who ran a raptor rescue centre in nearby Melton Constable made determined efforts to run Kelling, but it simply wasn't possible. My last visit was absolutely heart-breaking. The once immaculate grounds were overgrown with nettles and brambles and most of the aviaries, which had so impressed me, were little more than wrecks. Similarly, the wonderful collection of avicultural treasures had declined to a few oddments. A sad end to a great bird garden, but visitor numbers on the cold coast of north Norfolk were simply not sufficient to pay the huge running costs of such a collection.

And what of the Sussex collection? Most of the birds were bought by a good friend of mine, the late Gordon Holmes who maintained a wonderful collection of waterfowl, penguins, gamebirds and other species at Bradwell-on-Sea, of whom I will write later. The property was, I assume, disposed of.

The concluding part of Bernard's recollections will now be published in the next magazine. - Ed.

KEEPING AND BREEDING THE MOUNTAIN PARAKEET *Psilopsiagon aurifrons*

by Graham Thurlow

The Mountain Parakeet or Golden-fronted Parakeet *Psilopsiagon aurifrons*, previously *Bolborhynchus aurifrons*, hails from South America; specifically Peru, Bolivia, Chile and Argentina, where it is a bird of coastal plain and high altitude, shrubby country.

These little parakeets are similar in size to a wild budgerigar (though not the show specimens we see nowadays) and while both sexes are overall green in colour, the males have yellow on the face which extends down to the throat and continues as a yellowish green suffusion onto the breast. As chicks start to feather up in the nest this difference in colour between the male and female becomes apparent, making sexing a simple matter.

I have two pairs of Mountain Parakeets housed in a flight 14ft x 8ft by 6ft high (approx. 4.3m x 2.4m x 1.8m), with a semi-translucent polycarbonate roof. There are some plants in the aviary including a robust clematis montana, an ornamental cherry and a couple of clumps of bamboo. The parakeets spend a great deal of time chewing the woody clematis stems, but have not killed the plant which continues to produce buds in the aviary, and flowers on stems growing outside the enclosure.

The birds also have access to an internal flight in my bird room measuring 8ft x 3ft (approx. 2.4m x 0.9m). The bird room is heated in winter to 55°F (12.8°C) and there is also a ceramic spot heater above the wire covering the flight, with a perch positioned below it. These parakeets appear hardy, however, and spend much time in the outside flight even in the coldest months, though they always choose to roost indoors.

Initially, my first pair of birds roosted in a nest box in the indoor flight, but an introduced pair of Java Sparrows *Padda oryzivora* soon commandeered this for breeding, and now none of the parakeets roost in a nestbox, despite there being a number of vacant ones available.

In her book, *Parrots: Their Care and Breeding*, Rosemary Low mentions a Danish aviculturist who kept Mountain Parakeets with finches and waxbills. Personally, however, I would hesitate to keep them with birds that were not willing or able to defend themselves, although aviary size is important when considering mixing species.

As mentioned above, my parakeets share their aviary with a breeding colony of Java Sparrows with which they mix well. There are occasional disputes over perches but, although they make much fuss, twittering with flared wings, the parakeets never show any real aggression; in fact they defer to some of the more assertive Java Sparrows. Further, they have never shown aggression to newly fledged Javas.

Introducing a new parakeet to an existing trio has also proved uneventful. Introduction of a new cock bird to a trio consisting of a cock and two hens only resulted in a couple of days of musical perches until the original male accepted the new arrival. Introducing a new hen also went without incident. However I would be cautious about introducing a new bird to an established larger group.

Another huge benefit, apart from ease of sexing and their peaceful natures, is that these birds breed happily on a colony system. I bred from two pairs last year and there was never any squabbling over nest boxes, and the two pairs fed together amicably from the food tray with never a sign of bickering.

Feeding is relatively straightforward. Mine are offered, in separate pots, foreign finch mix, plain canary seed and budgie tonic mix, together with a small handful of sunflower seed every other day. Millet sprays are also routinely offered. In addition to dry seed, the birds receive sweetcorn and peas (thawed from frozen), celery, Little Gem lettuce and apple on a daily basis. I have tried pear *Pyrus* and carrot *Daucus carota*, but both were ignored. Additionally, in season they relish seeding grass, seeding dock *Rumex obtusifolius* (a particular favourite), sowthistle *Sonchus oleraceus*, the flowers, buds and berries of hawthorn *Crataegus* spp., together with the berries of honeysuckle *Lonicera* spp., Rowan/Mountain Ash *Sorbus aucuparia*, Pyracantha and Cotoneaster. I do not offer soaked seed when the birds are breeding, but do offer CéDé® eggfood and mealworms, the latter being taken with enthusiasm.

In the wild these little parakeets have been observed burrowing into earth banks, with a tunnel leading to a nesting chamber. The nest boxes favoured by my birds are an inverted ‘L’ shape; the entrance hole leading to an inner platform which, in turn, leads to a lower nest chamber (3in (approx. 7.6cm) below the platform) measuring 5½in x 6¼in (approx. 14cm x 16cm), in which I place wood shavings as a base for the hoped-for eggs. The clutch size has varied between 5 and 7 eggs but, to date my birds have never hatched more than 4 chicks.

Mountain Parakeets are coy about their mating procedure which takes place within the confines of the nestbox. Mating is not however, as private as it might appear as it is a noisy and frequent affair. Once a hen has started to lay, she does not, in my experience, emerge from the nestbox and must, therefore, be fed by the cock who spends a significant amount of time with her in the nest.

Once my birds start to show serious intent on breeding I do not disturb them and, therefore, I am assuming that the incubation period is approximately twenty one days, with the chicks remaining in the box for approximately six weeks before fledging. My lack of interference results from an incident last year when, having not seen one of the hens for some time, and not hearing the call of chicks I checked the box. The cock first shot out like a cork from a bottle; the hen remained on the nest a little longer but left just as I replaced the box. There then followed an anxious half hour. The hen clearly wanted to return to her two newly hatched chicks, but was unable to fly from the nearest perch to the nest box, a distance of about three feet, a situation I put down to her continuous confinement in the box for over three weeks. I ended up catching her and placing her back in the box and, happily, there she remained. When she did eventually start to leave the nest she was able to fly strongly once again.

Mountain Parakeets.

Adding strength to my view that the hen remains within her box for a prolonged period is the fact that the platform above the nest chamber was used as a toileting area with quite a build-up of faeces.

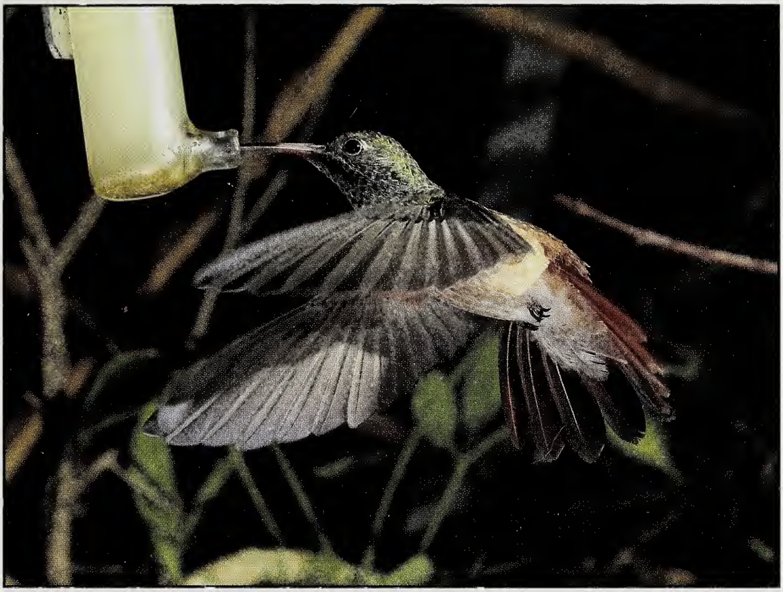
Last year my two pairs had a single clutch each, both producing two chicks, a cock and a hen in both instances. This year, to date, one pair has gone to nest producing three chicks; a cock and two hens. As each chick fledged they were the subject of much attention from the non-breeding pair which often tried to feed them. They had clearly been warned about accepting food from strangers, however, and declined these offerings.

To sum up, these small and peaceable birds are well worth offering a place in a collection and it would be a tremendous shame if we were to lose such charming parakeets from aviculture.

BREEDING THE AMAZILIA HUMMINGBIRD AT WELTVOGELPARK WALSRODE

by Hanne van Bavel and Diego C. Rubiano Franco

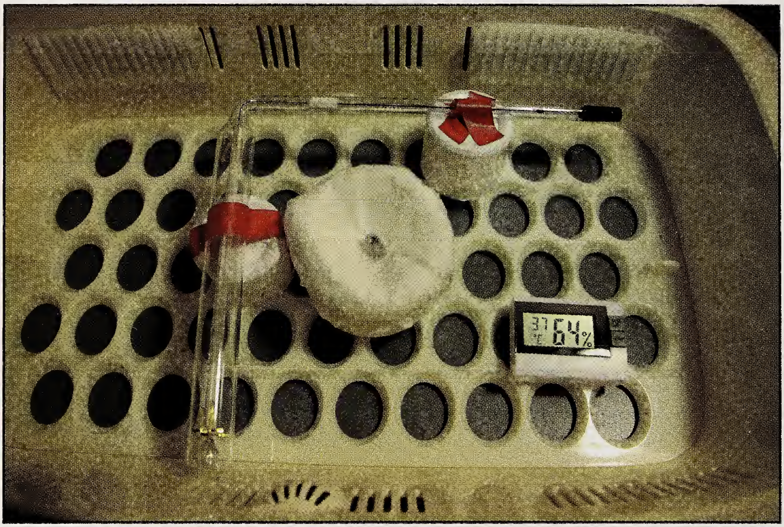
Hummingbirds are a family of new world birds, containing about 328 recognized species that inhabit different habitats in South America and southern North America. Most of these species are tiny - the smallest bird alive is in fact a hummingbird: the Bee Hummingbird, measuring 5 cm from head to tail and weighing less than 2 grams.



Weltvogelpark Walsrode

Adult Amazilia Hummingbird feeding.

Hummingbirds are well known for their extensively iridescent plumage and their main food source, nectar. Their bodies are adapted to their specific feeding habits; with their long, sometimes curved bill, they can access nectar in flowering plants, and their hovering flight allows them to remain seemingly ‘motionless’ in the air while feeding. Hovering arises by extremely rapid wing movement. Some species can flap their wings up to 80 times per second. Hummingbirds are solitary birds, often aggressively defending nectar sources. As a result, male and female hummingbirds will

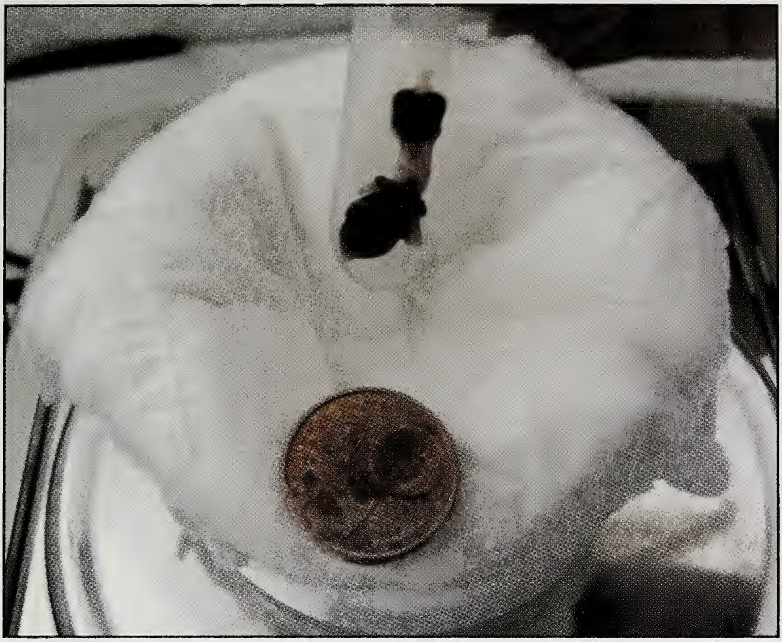


Weltvogelpark Walsrode

Setup for hatching Amazilia Hummingbird eggs. The chick is just about to emerge.

Weltvogelpark Walsrode

Closer view of the Amazilia Hummingbird chick hatching.



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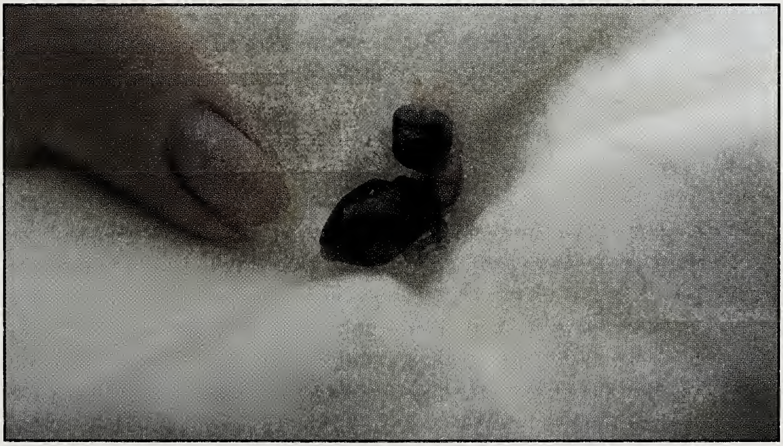
One day old Amazilia Hummingbird chick. The one euro cent coin, shown for comparison, has a diameter of 16mm.



Weltvogelpark Walsrode

A closer view of the one day old chick.

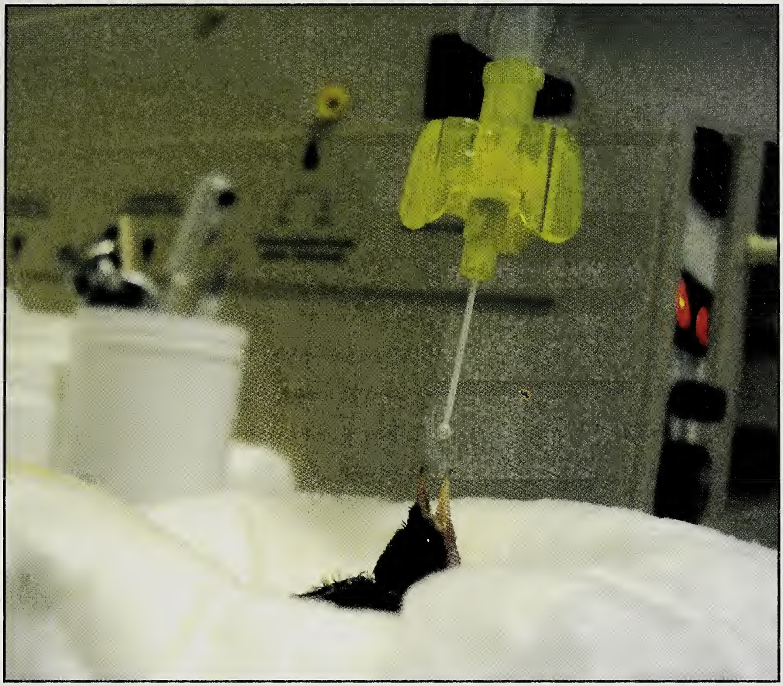
Weltvogelpark Walsrode

One day old chick hatched in the nest.

only associate briefly to mate, and the female hummingbird will take care of the eggs and chicks on her own. Chicks are fed with small insects and nectar, and as they grow, the proportion of insects will diminish. In adult hummingbirds, insects only make up 10% of the diet.

Hummingbirds are rarely kept in zoos because of their specific needs. One of the better known species is the Amazilia Hummingbird (*Amazilia amazilia*), which occurs in Western Peru and Ecuador. This species measures 9 to 11 cm and weighs about 5g. Amazilia Hummingbirds have a green head and upper back, a rufous tail and belly and an iridescent throat ranging from golden to turquoise green. Their wings are black and their bill is mostly red. Males and females look very similar, but females usually look a little duller and have a larger black tip on their bill. Amazilia Hummingbirds prefer semi-arid to arid habitats with scrub, thorn forests and desert areas. They are also common in cultivations, parks and gardens, even within larger cities such as Lima. The species breeds all year round, with females usually laying two eggs in a cup-like nest consisting of plant wool, fibres and spider webs. After an incubation period of 16 days the almost naked chicks hatch, weighing approximately 0.5 grams.

Amazilia Hummingbirds have been bred in some institutions, but it



Weltvogelpark Walsrode

Amazilia chick being fed.

Weltvogelpark Walsrode

The hand-reared chick at two weeks old.

remains very difficult to maintain a sustainable population in captivity. In 2011, Weltvogelpark Walsrode had the chance to start an Amazilia Hummingbird breeding project. This was a fantastic opportunity for us, but of course it needed much preparation. For our hummingbirds, we designed a room where the light cycle, air inflow, temperature and humidity are artificially controlled. This room is divided into three parts: a kitchen for food preparation, enclosures for habituation and a large room for the breeding aviaries. Each of our breeding aviaries gives the bird access to two lamps for sunbathing, one pot with a fruit fly culture, one feeding tube with nectar, and one bath. Plenty of sticks and plants are available for the birds to sit down and rest, doors in between the aviaries allow for males and females to be easily put together for mating.

Weltvogelpark Walsrode

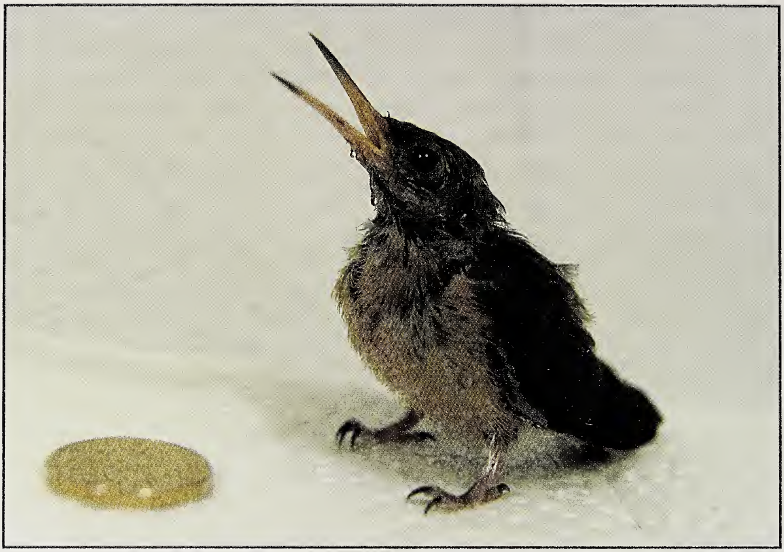
The parent reared chick at two weeks old.

On the 30th of October 2011 it was finally happening: 6 female and 5 male Amazilia Hummingbirds safely arrived at Weltvogelpark Walsrode. After the quarantine period, the birds were moved to their individual breeding aviaries. All of the birds responded very well to the transfers. One of our females even started building a nest right away, resulting in the first egg on the 8th of March 2012. This egg was followed by another two eggs on the 18th and 20th of March. Sadly these first eggs weren't fertilized, probably due to some fertility problems of the male or the pair did not harmonize very well. Once we recognized this, the female was paired with another male, which resulted in a fertilized egg on the 15th of May. At that moment we were confronted with another problem: all of our birds were very young, and none of them had any breeding experience. This is probably the reason why the female didn't incubate very well. As a result, the egg had to be put in an incubator. Obviously, this was not an optimal situation, but it was very fascinating to see an embryo develop in such a tiny egg. Unfortunately, the embryo died on the 10th day of development.

Weltvogelpark Walsrode

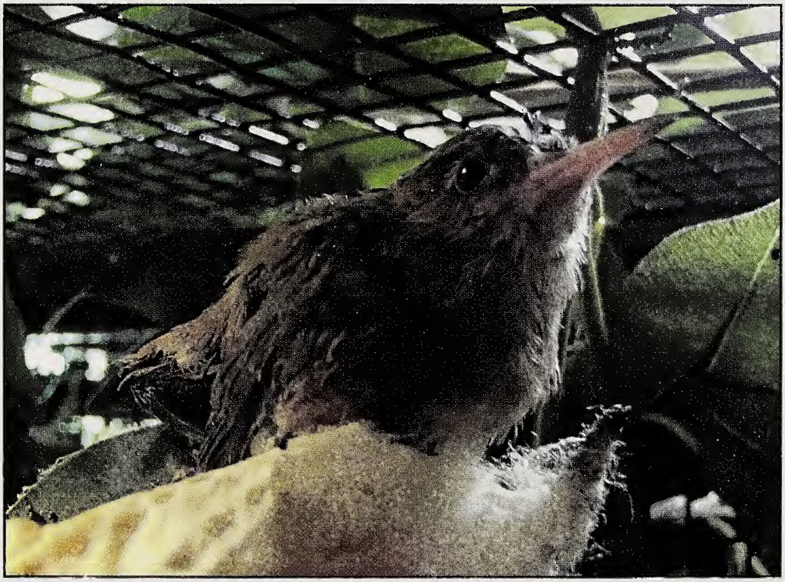
The chick being fed.

After a quiet period in June and July, we had another egg on the 15th of August 2012. Because the female didn't incubate at all, this egg had to be put in an incubator as well. After five days it was clear that the egg was fertilized, and 11 days later the first hummingbird chick at Weltvogelpark Walsrode finally hatched. Although the chick made a hole in the shell on its own, it was not able to hatch without our help and it weighed only 0.37 grams. The chick was hand reared in an artificial nest placed in a separate incubator. Initially, it only received some water, but after 24 hours, when the yolk sac was completely absorbed, we started feeding nectar and flies.



Weltvogelpark Walsrode

The hand-reared fledgling.



Weltvogelpark Walsrode

The parent reared chick just before fledging.

Weltvogelpark Walsrode

The parent reared fledgling being fed.

The chick was fed every 20 minutes from 8.00 am to 11.00 pm and was left to rest during the night. Although the chick was begging very actively during the first two days, it looked very weak on the third morning and died a few hours later.

It took some time before we had another chance to breed these beautiful birds, but in November, one of our females started laying again. We were able to monitor the breeding behaviour by placing a camera above her nest. The female laid two fertilized eggs and incubated them perfectly. On the morning of December 8th, we were very happy to find one healthy looking chick in her nest. It hatched completely on its own on the 16th day of incubation. A few hours later it got even better: the second chick started hatching. This chick also hatched on its own, after only 15 days of incubation. The female took good care of both chicks. She was constantly catching flies to feed to her chicks and in between she was cleaning or incubating them. The chicks clearly received an enormous amount of flies, causing their crops to grow as big as their heads. Both chicks grew very fast and were begging actively. After a week, their eyes started opening and after 10 days the mother stopped incubating them during the night. Sadly, on the 12th day after hatching, one of the chicks got some food in its trachea when it was being fed by the mother. We couldn't do anything, and the chick died within two minutes. Fortunately, the other chick kept on growing and after a while it was sitting on the edge of the nest, curiously looking at the world around it. During this period we started feeding the chick with a feeding tube, so it would recognize feeding tubes after fledging. On the 7th of January 2013, the chick took its first flight and made a clumsy landing on the floor of the aviary. During the next days it became better and better at flying and it started feeding from a feeding tube on its own. A couple of days after fledging, the chick was separated from its mother and Weltvogelpark Walsrode had its first fully grown hummingbird chick!

Two months after the first chick fledged, an egg was again abandoned by its mother. The fertilized egg was put in our incubator, and on the 14th of March, a chick hatched after 15 days of incubation. Once again, we tried the best we could to hand rear this tiny bird, and this time our efforts paid off. The chick was always begging actively and it grew very well. It only weighed 0.5 grams on day two, but its weight increased to 3.3 grams on day 15 and 4.9 grams on day 25. We fed it fruit flies soaked in isotonic water, supplemented with nectar. The amount of fruit flies increased every day: on the 3rd day it was fed 45 fruit flies throughout the day, and on the 15th day this amount had been increased to 445 fruit flies. After day 15 we started lowering the amount of fruit flies, since adult birds hardly need any insects. The amount of nectar was increased every day as well: 0.48 ml on the 3rd day, 5 ml on the 15th up to 8 ml on the 25th day. The chick fledged on April 4th 2013, 21 days after hatching. A few days later, when the chick was completely independent, it was moved to a small aviary, where it could practise its flying skills.

This chick wasn't the end of our breeding success. In fact, five more chicks successfully hatched and fledged, of which three were raised by their mother. The young females seem to catch up on their breeding and rearing experience, so that 4 young were successfully parent reared.

At the time of writing, there were 7 healthy chicks flying around in their individual aviaries. Weltvogelpark Walsrode is very proud of this accomplishment, and of course we hope our efforts to breed these little birds will keep paying off in the future.

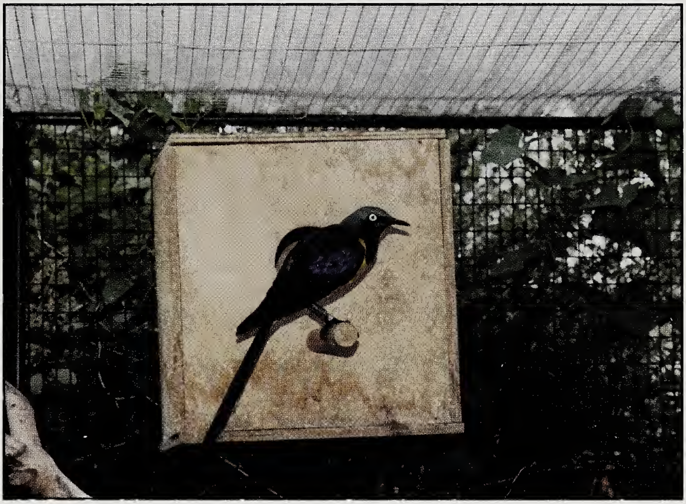
Acknowledgements

The hand-rearing team comprised Diego C. Rubiano Franco, Laura Rios Ortiz, Oliver Busse and Hanne van Bavel

BREEDING OF THE GOLDEN-BREASTED OR ROYAL STARLING *Cosmopsarus regius*

by Patrick Chartier

The African glossy starlings are classified under the generic name Lamprotornis. The Royal Starling can therefore be identified by the scientific name: *Lamprotornis regius* (regius meaning royal) or as *Cosmopsarus regius* (the Gold breasted Starling).



Adult Royal Starling perched at the nest box

In this article I will use the second name because this bird, and *C. unicolor*, the Ashy Starling, when kept in captivity, have needs that differ greatly from those of all the other species of African starlings. Their behaviour is different, and their diet is mainly insectivorous.

Howard and Moore, in their *Complete Checklist of the Birds of the World*, recognise two subspecies: *C. r. regius* and *C. r. magnicus*. I have personally observed many specimens in captivity and in the wild, without ever being able to identify a phenotypic distinction. According to Van Someren (1924), *C. r. magnificus* would be in the northern part of the range and would have the distinction of brighter colours, with more purple on the chest.

Thus *C. r. magnificus* would have, according to The Handbook of the Birds of the World, a range centered on Tsavo and the two subspecies may have resulted in sympatric speciation.

This bird is not subject to trade legislation or special restrictions.

Young Royal Starling in the nest at 15 days old.

Description:

This bird is an easily identifiable starling, with a very long tail, blue on the wings, green iridescence on the head, and a chest and belly of a remarkable golden yellow, above which is a bright crimson patch. The eyes are white and the legs and bill are black. The size is about 35 cm, females generally a little smaller than males, but a number of specimens are between the two.

The tail is long and tapered. The feathers are black with a bronze top, sometimes with green reflections, depending on the light. The primaries are dark brown with a violet copper edge; secondaries are purple except for the internal margins which are brownish. The outer primaries are notched.

There is no sexual dimorphism described in the literature, but with experience, it is possible to sex birds visually. Females are generally smaller, thinner and have a different physiognomy, less powerful than the male.

More objectively, there are tables of measurements, often based on small samples. There are fewer measurement tables for females. The most striking differences appear to be, as in many avian species and most of the passeriformes without phenotypic sexual dimorphism, the length of the skull, (the most usual measurement taken by professional ornithologists). Males range between 33 and 36mm (average: 33.3); females: 28-33 mm (30.6 mm); the length of the wings: males: 132-146 mm (average: 136.5mm), females: 123-133 mm (127mm); and the weight: male: 62g, female: 43g. These measurements are confirmed by the specimens which I have held that were

Young Royal Starling being weighed.

either genetically sexed or had reproduced.

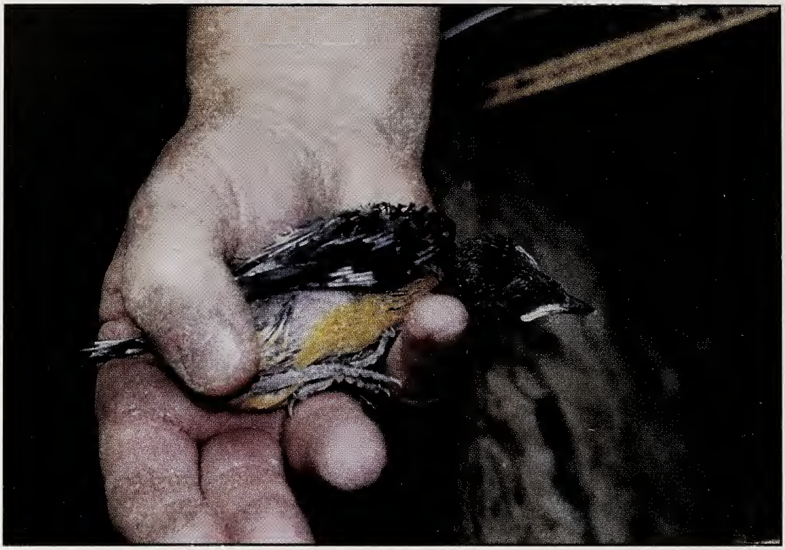
The immature bird has head, neck and chin of a greyish brown, spreading down to the top of the breast, the colouration being darker on the lores and ear covers. These colours are typical of juveniles of the African starlings with iridescent plumage. The upper parts are dark brown with bright bluish-green tipped feathers. The bottom of the chest to the tail coverts are brownish yellow. The wings resemble those of adults, but duller with greyish-brown feathers. Juveniles attained the colouring of the adults when 3 months old.

The iridescent plumage begins to appear on the head and chest and dull areas of the wings (see photo p.79). The last parts of the plumage to change to iridescent colouring are the throat and chest. They then resemble adults, but according to Van Someren (1956), a comprehensive moult seems to be necessary to attain the intense colours of the adults.

The eyes are black during the first weeks of life and later become greyish-brown. When adult colour appears, the eye remains dark but becomes lighter each year. The legs and bill are very dark brown. In captivity, as I have noted personally, an adult which has not reproduced by mid-July starts to moult.

Young

Hatched naked and blind, they look like those from the other species of African starlings. Feathers start to appear on the 5th day.



Young bird being examined. The feathers on the breast are well formed.

Voice:

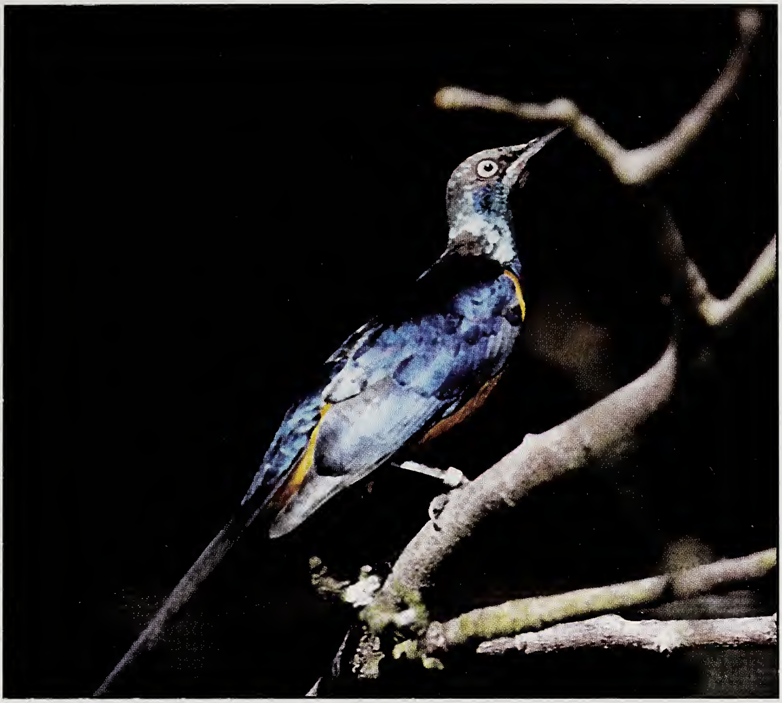
When kept in good conditions in an outside aviary, this bird emits a powerful hissing, simple and repeated almost constantly, but much more pronounced if in a group or a pair. This appears to allow them to remain in sound contact with other group members; it is especially evident in the morning and late in the day. If they are disturbed, a hoarse and repetitive call is made. When birds saw me enter the aviary, the first cry was much more powerfully emitted with contact whistling. This was perhaps to support the cohesion of the group when facing a disturbance. The contact call in flight translates as “cheeo-cheeo” or “weep-weep”, the alarm call as “chiar” (Van Someren, 1956).

These vocalizations are also repeated constantly and allow the group to remain together (Archer and Godman, 1961).

Distribution, habitat and status

It is a common and endemic resident of desert areas, arid, semi-arid, shrub savannahs, and open bush with scattered shrubs, in the South of Ethiopia, Somalia, Eastern Kenya and Eastern Tanzania. Its distribution is mainly below 1000 m.

Ethiopia: the bird is not common, though common in the south and south east and the Rift Valley.



The iridescent plumage appearing on the head and chest.

Somalia: common in the north-west, extending to the east coast and south in the central-west area.

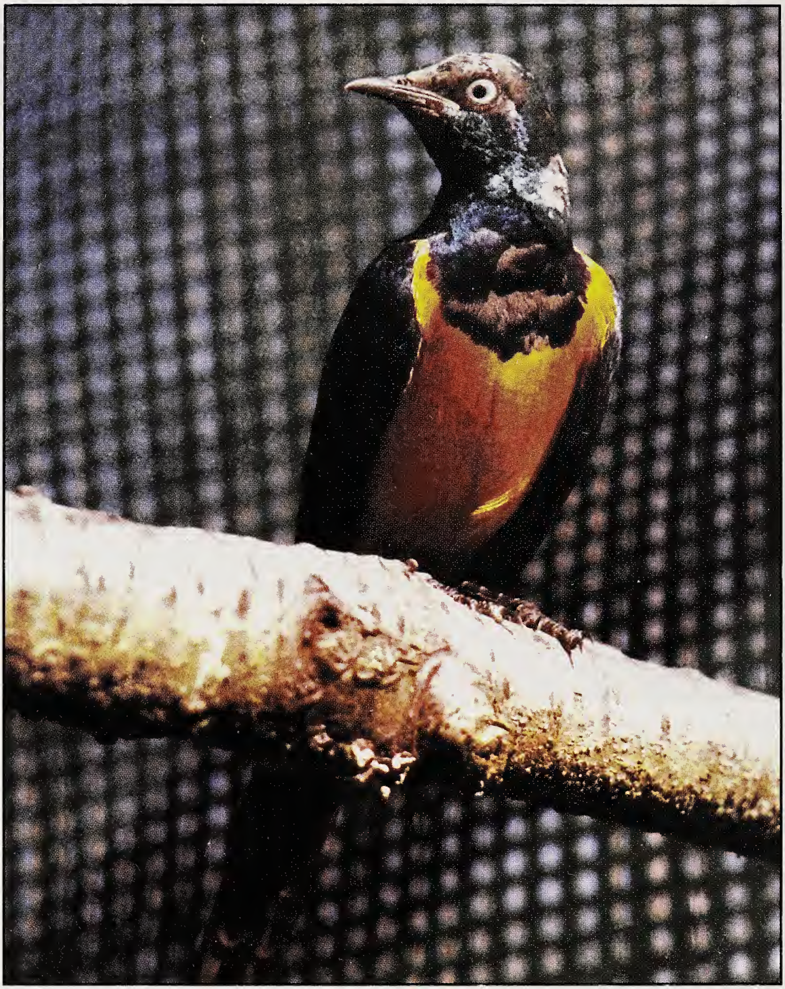
Kenya: locally common east of the Rift Valley up to 1200m, south to Samburu, Meru, Tsavo and along the Tana River to the coast north of Malindi. It is absent from the arid northern and eastern parts.

Tanzania: Northeast, westward to Masai Steppe, ranging in the south to Kilosa.

It seems nowhere to co-habit with the Ashy starling *C. unicolor* (Lewis and Pomeroy, 1989).

Some seasonal fluctuations in population density were observed at Tsavo (Lack, 1985), where the number of specimens present sees a peak from July to September.

With regard to Kenya, as I have noted personally, it is common in areas at certain periods and other times virtually non-existent. Migration, locally, seems to occur at the time of the rains.



An immature bird with adult colour coming through.

Behaviour

Cosmopsaurus regius is a gregarious bird, moving through the open dry bush; groups can be up to a dozen individuals. These family-sized groups meet throughout the year, except during the breeding season when couples isolate themselves (Van Someren, 1956).

The major focus of the groups is safety and the avoidance of predation; larger numbers give better visual coverage of potential dangers.

These birds spend most of their time on the ground, actively looking for insects by hopping or running. These forays are often on bare ground, but also on flowers and foliage. They often hunt on the wing with great precision, catching all manner of insects. It is a lively and alert bird, and is sometimes joined by other starlings such as the Fischer's Spreo *Spreo fischeri.*

It can be shy around humans (except where they are the norm as around some inhabited lodges). As soon as they are disturbed, they fly a short distance to the nearest bushes. The flight is low, rarely more than 2 metres above the ground, flying from one bush to another or between the acacia trees. At mid-day, which is the hottest period, it perches, preening its plumage, whilst making a low chirping sound.

Food

They are primarily insectivorous but do consume some fruit. In Tsavo, 76% of 394 catches of food consisted of insects, of which 97% were collected on the ground (Lack, 1985); termites are also captured in flight.

The most frequently found stomach contents are beetles (Carabidae), termites (Termitidae), ants (Formicidae), fruits of *Commiphora* and *Dobera*, plants and grains of sand (Lack and Quicke, 1978).

The young are usually fed larvae of butterflies, moths, grasshoppers and beetles (Van Someren, 1956).

Reproduction

Many observers report that this bird is a co-operative breeder. Thus, Van Someren (1956) noted three adults feeding a brood of four young with butterflies and larvae of scarab beetles, and removing faecal sacs. He concluded that a male and two females were involved. Polygamy is seen regularly in different species of starlings.

Co-operation has been confirmed by Huel (1981) and by Kibwesi, who observed five nests around which five to nine adult birds were observed and at least five birds were feeding the same brood. One nest consisted of two birds, one was determined as a female by laparotomy and it appeared that only one female was incubating. Other members of the group brought building materials and fed the female on the nest. After hatching, she begged for food, which she then fed to the young. This soliciting was demonstrated by shuddering slightly raised wings, opening the beak and calling.

Two friends and I have also managed captive breeding, but have never observed such social behaviour. It is risky to leave several specimens together, especially if they have not known each other for a long time. I have always taken great care in trying to put a group together with frequent observations of the birds, but it is sometimes impossible for some groups to create social bonding.

I have only once seen in captivity, in fifteen years of observation, a reproductive pair tolerating the presence of another individual - a young female from the previous year. In captivity there is a possibility of double broods.

Nest

The nest is usually made in a tree hole 3-7 metres off the ground; either natural, or dug by barbets (Capitonidae) or woodpeckers (Picidae) and abandoned. A nest was observed in a Platycelipheum voiensis at 1.5 m from the floor (Huels, 1981). It is also possible that other sites are used such as the cavities in termite mounds. These cavities are filled with different materials like dry grass, hair, feathers, leaves, roots, dried wood, etc. (Van Someren, 1956; Archer and Godman, 1961). The female tends to add fibrous materials to the nest during the incubation period.

Eggs

The clutch is usually two to six eggs, which are elongated, pale bluish green with small reddish-brown markings, laid daily (Jackson and Scalter, 1938). Their size is 25.0-28.8 x 17, 2-19, 0 mm (19), averaging 4.7 g in weight (Schonwetter, 1938).

Time of breeding

Somalia: From April to June. Two possible clutches (Archer and Godman, 1961).

Kenya: during the two rainy seasons, short and long: March-May and November-December (Brown and Britton, 1980).

Ethiopia: March-May (Benson, 1946).

Incubation

It is only carried out by the female for about 14 days. 15-20 minute incubation periods are interspersed with absences of 5-10 minutes. During this period, the male feeds the female in the nest. Females in my possession were keener to incubate when the outdoor temperature was low.

Development and care of the young

The male feeds the young in the nest and removes their faecal sacs. There may be a significant disparity in the size of the young in a brood of four. The average weight at twelve days is 45.8 g (captive birds, Bell, 1984). Feeding visits are frequent: 48 in 2 hours, 16 by the reproductive female, 32 by four other adults (Huels, 1981).

In captivity

The information presented here is from literature, observation and experience.

Building the aviary

The bigger the aviary the greater chance that the birds will be able to behave naturally. This reduces stress giving an increased chance of successful reproduction.

The aviary should be correctly sited in order to offer maximum sunlight during the greater part of the day. The Golden-breasted Starling is a thermophilic bird and dislikes damp weather. Like most birds of semi-arid and arid areas, it can withstand temperature fluctuations if the humidity is not too high. It is better if they can warm up somewhere, so a heat lamp, put in the sheltered part of the aviary, is recommended during grey or damp weather in the autumn and winter. In the sunniest areas, covering part of the aviary with PVC to give protection from the wind is enough for the birds to withstand the winter.

After two years of careful acclimatisation during which they were wintered in a temperate area, the starlings then wintered well outdoors, when given a dry and wind proof shelter. All the perches were protected from rain and possible wind in exposed areas. The birds therefore prefer a "continental" climate but can withstand cold if kept dry in a humid maritime climate, especially with good food, good hygiene and sound housing conditions.

The material used for the floor is sand, which can be easily cleaned and is replaceable: it does not encourage parasites. It also mimics the soil of the natural area. This sand is placed on a lattice in the form of a fine mesh, covering the whole of the surface right up to the blocks that form the foundations of the aviary. This does not prevent planting, as holes were simply cut through the mesh. This mesh is designed to prevent the entry of pests. Also 30cm zinc plates placed around the top of the aviary at an angle of 40 degrees to the horizontal deter pests. Pine bark can be spread on the ground, and the acidic PH has an antiseptic role but will not harm the birds which spend a lot of time on the ground.

Perches should be changed regularly as birds frequently wipe their beaks on them. The whole of the aviary should be disinfected regularly, with a sprayable product, non-toxic to the birds and whose action is long lasting: Ceetal Agristeryl was used at home.

This starling is not destructive to plants; aviaries should be planted with a canopy, a more 'natural' habitat and pleasant surroundings. Laurel or ivy *Hedera canariensis* 'Gloire de Marengo' are plants most often used in my aviaries, especially so as they are evergreen.

The food is placed in feeders on trays placed on smooth metal poles, to avoid contact with rodents, and food containers should be cleaned and disinfected regularly. Water can be given high up or on the ground. These birds enjoy a bath so water should be changed daily. They appreciate the rain and ruffle their plumage, calling enthusiastically. A tray of fine and dry sand allows them to indulge in dust baths, which are much appreciated by this species.

The orientation of the aviary is essential - due south if possible. During sunny periods they will sunbathe frequently, raising their wings and fluffing up the feathers on the back and chest, as this allows heat to enter, bringing the parasites to the surface where they can be disposed of more easily.

The sides of the aviaries can be double meshed as a protection. Fishing line arranged around the aviary deters raptors and is aesthetically pleasing; it can be attached to poles at the height of the aviary and fixed to the ground, 30cm from the wire. This does not hurt the raptors, but frightens them. The surprised raptor generally does not return. This system was approved by a falconer and professional ornithologist.

They are sensible birds (like starlings in general) with a temperament that enables them to adapt well to captivity. However, they are sensitive to some factors, such as differing weather conditions, and they need special care by competent and experienced aviculturists. Being active, curious and lively birds they need points of interest such as low vegetation, roots and grass. Although I keep my birds in pairs, it is possible to keep them in large aviaries, as seen in zoological gardens, where groups can be kept. Many feeding stations will be required to prevent competition.

They can be aggressive when breeding, but Royal Starlings are probably the least aggressive of the entire genus Lamprotornis. In an aviary of 5 x 3 m, I have also successfully bred Crested Partridge *Rollulus rouloul*.

Food

They are starlings who are primarily insectivorous and so the daily intake of fruit is much less than with other starlings. Available to my birds were:

A quality insectivore food – the basic food element. If possible, vary the types or brands. Check their composition, including fat and iron.

Many types of pellet, some are consumed.

Extruded food, little consumed.

A mixture of exotic seeds, also very little consumed. Birds toyed with them and this has the disadvantage of attracting unwanted rodents.

Sweet apples like golden delicious are the favourite, sour apples are hardly ever eaten.

Raisins are offered regularly.

Occasionally pollen, which is very rich in essential elements, it can be mixed with the food. Moisten beforehand to make it more miscible.

Seasonal fruits, like pears and different berries.

Mealworms and their pupae - provided little and often, so their intake can be monitored with less waste. Mealworms are capable of consuming various foods: wheat bran, whole wheat flour, flaked or granular dog food, various vegetables and fruit. This gives them a higher nutritional value.

Food supplements (vitamins and trace elements). These are usually given as a powder, which can be sprinkled on the insects.

Insects. Can be wax moth larvae. Feed sparingly because can be ‘sticky’, particularly when feeding young. Also caterpillars, ant larvae and maggots. Modern methods of maggot production have made the risk of botulism negligible. Insects can be fed fresh (washed) or blanched (a few seconds in boiling water). The proportions are approximately 2/3 of mealworms and 1/3 of other insects.

About 50 maggots a day per pair. Amounts vary depending on weather and reproductive state.

Wild caught insects, quantities vary.

Haemochromatosis

There is a risk of this disease in captive starlings and so it is advisable to check the iron content of foods. As a precaution, on days without rain, a tea infusion can be presented as a drink. The tannins are iron chelates.

Reproduction

Is best when there is a pair! This may make you smile, but I have known people who had difficulty breeding them for many years only to find, after DNA testing, the birds to be the same sex. DNA testing is now relatively inexpensive and very worthwhile.

If several birds are kept it is better to let them pair naturally.

Nest boxes should be placed high up and protected from the elements. Different shapes of box should be offered and with different sized holes. Usually they choose the smallest hole size.

Boxes should have some dry grass or wood shavings with a non-toxic insecticide placed at the bottom. Ectoparasites can be a major problem to the young in the nest.

Breeding will take place if weather conditions are favourable: this species is more sensitive than the other African starlings to humidity and low temperatures. I have repeatedly noticed that rainy conditions can result in the nest being abandoned and also cause the birds to moult as early as July.

Two to four eggs are incubated by the female. Eggs are blue/green in colour, unusual for hole nesters. This may prove that originally the starlings did not use cavities which they are incapable of creating (except for two African species who can dig their burrows: *Speculipastor bicolor* and *Lamprotornis bicolor*). Nest holes are a secondary adaptation and a basic condition for this family. Some consider that the colouring of the eggs is an adaptive response to parasitism by cuckoo species that then lay eggs which mimic the colour. Individual females vary in the colour and pattern of their eggs.

Rearing the young

Eggs hatch daily. The first 10 days after hatching is the risky time, after that, losses are rare.

The food is strictly insectivorous for the first days of life. Appropriate size meal worms, maggots, wax moths and ant eggs. Attracting wild insects by planting plants such as lavender around the aviary is beneficial. Ants can be attracted using suitable bait.

During breeding, the insects can be dusted with a vitamin supplement. This is essential for successful breeding. Water-soluble mixtures degrade quickly in the light and the summer heat so they should not be used.

Ringing is carried out around the 8th day, depending on the development of the chicks, with diameter 4.2 mm rings covered with sticky paper, brown or black, to make them less visible to the parents.

Adults feeding the chicks often cling to the bottom edge of the access hole, supporting their bodies against the box and using their long tails as a prop.

Young leave the nest between the 3rd and 4th week (usually 19-22 days) after spending a long time looking out of the nest box. During this time adults prefer to feed large insects rather than larvae. I have observed the young regurgitating the chitinous exoskeleton of insects.

I have no experience of artificial incubation. However, it is possible to hand rear the young from 8-10 days using a combination of insects and insectivorous food. Young are independent at the end of the 4th week, a little later in the case of hand reared birds.

There have been reports of hybridization in captivity, between a Royal Starling male and female Superb Starling (Hopkinson, 1932).

Pathology

This bird as an insect eater is subject to gapeworm and various parasites, including those of the respiratory tract. It starts with noisy breathing, shortness of breath, coughing or sneezing. Treatment with Ivomec, (ivermectin to 0.5g per 100 ml of solution) is needed. Two to three drops were placed each side of the sternum. It is a broad spectrum treatment. This approach has been criticised clinically because the type of parasite has not been identified, but it almost always worked. Parasites implicated are *Ascaris*, *Syngamus* or respiratory *Ascariasis*. If symptoms persist, it is necessary to consult a vet who can perform an analysis with a swab taken from high in the respiratory tract. Faeces can also be looked at and examined.

Prophylaxis is essential. My birds living outdoors are wormed (Capizol, levamisole and sodium metabisulfide) and receive an anticoccidiosis (Baycox 2.5%; Toltrazuril) treatment once per quarter in their drinking water. Treatment is repeated after 15 days, as it does not destroy the eggs of parasites.

It is essential to inspect the birds daily. If there is a change in behaviour, start a routine of emergency first aid: isolate, protect from the weather, and then give anti-parasitic treatment and broad-spectrum antibiotics, also Baytril 2.5% oral solution. Birds of this size need immediate treatment. If the symptoms recur, contact a veterinary surgeon for advice and swab analysis. Rapid treatment is necessary. Early recognition of sickness is the key to success.

Survival rates in captivity in England have been reported for three birds at 17, 19 and 28 years (S. Tongue). I have not exceeded 12 years in captivity for a bird living outdoors in a maritime climate.

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Note: this bibliography acts as a further reading list: it does not cross reference the references in the text. Ed.

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Conclusion

This bird should only be kept by people with some experience of African starlings in order to maintain them in good condition and to breed from them. There are very few birds in captivity and so it is essential to keep them well.

LORO PARQUE FUNDACIÓN REPATRIATES FOUR MORE SPIX'S MACAWS TO BRAZIL

by Dr. David Waugh

In April of 2013, four more Spix's Macaws *Cyanpsitta spixii* were transferred from the specialized breeding centre at Loro Parque Fundación in Tenerife, Spain to their native country of Brazil, in a repatriation that contributes to the recovery of this iconic parrot species. Officials from the competent Brazilian Government agency, the Chico Mendes Institute for Biodiversity Conservation (ICMBio), accompanied the specimens on their journey to Brazil and all four specimens have subsequently passed successfully through quarantine and are now accommodated in the facilities of NEST, another centre authorized to keep this species. Spix's Macaws transferred from the Loro Parque Fundación (LPF) include specimens that were bred in its breeding centre, and all of the specimens are owned by the Government of Brazil, which oversees the official recovery programme. The Loro Parque Fundación returned the ownership of all its Spix's Macaws to Brazil in 1997, and is the only organization outside Brazil to have done so.

Young Spix's Macaws at Loro Parque.

This latest repatriation is very significant because the Spix's Macaw is almost certainly extinct in the wild, and can only be recovered by captive breeding and subsequent release of macaws to the wild. The managed captive population within the official programme numbers 79 individuals, which is a very small number with which to work for its recovery. Endemic to the region of the very dry north of Bahia State, the original wild population occupied specialized habitat limited to the basin of the São Francisco river, which is now greatly reduced in area. The wild Spix's Macaw population, never thought to be large, declined due to habitat loss and then the removal of birds for trade. The last wild specimen, a male paired with a female Blue-winged Macaw *Primolius maracana*, disappeared in the year 2000.

The LPF and Loro Parque have been instrumental in their efforts to save the Spix's Macaw ever since the first meeting organized for this purpose in Tenerife in 1987. The next key meeting took place in 1989 in Lausanne, Switzerland at the time of the 7th Conference of the Parties to CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora), and in addition to Loro Parque had representatives from IBAMA (Brazilian Institute of Environment and Renewable Natural Resources), TRAFFIC South America, the CITES Secretariat and various national CITES authorities. This meeting resulted in the formation of the Permanent Committee for the Recovery of the Spix's Macaw (CPRAA). Presiding over the CPRAA, in 1990 the Brazilian Government agreed to accept as legal, and not to try to confiscate, specimens that holders would agree to manage under the conditions of the official recovery programme (via the CPRRA), which completely excluded commercial trade. Despite other holders wavering in their commitment to these conditions over the years, the LPF has always maintained its obligation and contributed fully to the recovery programme.

This commitment included, from 1990 in partnership with IBAMA, its expertise and financial resources dedicated to protecting the last wild male Spix's Macaw and its remnants of habitat. These many recovery activities, including the release of a female Spix's Macaw (which subsequently disappeared) and a pilot release of a group of Blue-winged Macaws, were possible with more than US$ 700,000 contributed by the Loro Parque Fundación. Also during all these years, the Loro Parque Fundación has been supporting the costs of maintaining and breeding Spix's Macaws in Tenerife, in a specialized, isolated centre which it constructed uniquely for this species to provide complete physical and biological security for the macaws.

The commitment of the Loro Parque Fundación to the continuing survival of the Spix's Macaw is accompanied by its dedication to protect many other species of threatened parrots around the world. This includes another highly threatened endemic macaw of Brazil, the Lear's Macaw *Anodorhynchus leari*, in partnership with ICMBio. Since its inception the Loro Parque Fundación has financed 96 projects with more than US$13,750,000, and continues to support 35 projects in 2013 with over US$1,150,000.

NEWS FROM LORO PARQUE FUNDACIÓN MAY 2013

by Dr. Matthias Reinschmidt

We are currently at the peak of activity in the rearing house as you would expect at this time of year. We are very pleased that we have the first Blue-eyed Cockatoo *Cacatua ophthalmica* of the season, which is growing perfectly under the care of the keepers. This cockatoo species is very rarely kept in captivity and its status in the wild in New Britain and New Ireland is threatened.

Also very important is the rearing of three Salmon-Crested Cockatoos *Cacatua moluccensis*, which are five to six weeks old. They were once common in captivity due to the import of wild caught specimens but they are not often bred and are now scarce in captivity. They are now bred regularly here at Loro Parque.

We had a great first-time breeding success of a young Red-vented Cockatoo *Cacatua haematuropygia* last year, and with three parent-reared young, it seems that it will happen again this year because the pair laid three eggs, all of which have hatched, and the young are being raised in an exemplary way by their parents. Also in the case of this species, breeding success in captivity is extremely important in order to establish a large gene pool as it is critically endangered in the wild.

A 20 day old Golden-collared Macaw *Primolius auricollis* is also being hand reared. Although this species is stable in the wild, in captivity it is becoming more and more unusual, and so it is very important to keep them in our aviaries.

Most of the chicks in the rearing house at this time are cockatoos and lories. We have two Scaly-breasted Lorikeets *Trichoglossus chlorolepidotus*, one Rainbow Lorikeet *T. haematodus haematodus*, one Pale-headed Lorikeet *T. h. caeruleiceps*, one Deplanche´s Lorikeet *T. h. deplanchii*, one Sunset or Forsten's Lorikeet *T. h. forsteni*, one Marigold Lorikeet *T. h. capistratus*, one Olive-headed Lorikeet *T. euteles*, eight Red-flanked Lorikeets *Charmosyna placentis*, two Black Lories *Chalcopsitta atra*, one Red Lory *Eos bornea*, and two Chattering Lories *Lorius garrulus flavopalliatus*.

Between the end of April and the beginning of May, the 15th Parrot Workshop organised by *Papageien* magazine and LPF took place. During the week, 52 parrot owners and breeders had the opportunity to listen to an interesting programme of selected top speakers, and got many extraordinary insights behind the scenes of Loro Parque, and gained much new knowledge. All the participants were accommodated in the 5-star Hotel Botánico in Puerto de la Cruz, belonging to the Loro Parque group. The feedback from the participants was very good.

THE SPRING SOCIAL MEETING TO PARADISE PARK IN CORNWALL

by Reuben B Girling

Paradise Park marks its 40th anniversary this year - being founded in the grounds of Glanmor House by Mike Reynolds and his wife Audrey as "Bird Paradise" in 1973. As Paradise Park is home to the World Parrot Trust (WPT), it was to be expected that Psittacines would be the main act seen during our visit and this proved to be the case although a strong supporting cast and many extras added to our enjoyment.

We were met by the internationally known and respected Curator, David Woolcock, who helped found the WPT in 1989.

We viewed the Entrance Aviary, initially through a large window, allowing close scrutiny of colourful male Village Weavers *Ploceus cucullatus* constructing their nests that hung from the aviary roof.

The path alongside the aviary gave the more traditional view. Although only recently allowed out of their winter quarters, some of the Pied Avocets *Recurvirostra avosetta* were already sitting. Other distinctive species in this aviary included Violaceus Turaco *Musophaga violacea,* Palawan Peacock-pheasant *Polyplectron napoleonis,* Superb Starling *Lamprotornis superbus,* Spreo Starling *Spreo superbus* and a single Baikal Teal *Anas formosa.*

The second aviary - a truly large affair, as indeed so many are at Paradise Park, has sufficient dimension, open shelters and enriching aviary stimulation to contain a collection of Military Macaws *Ara militaris,* bred in Paradise Park, that will appear later in the season in the free-flying displays.

Round the corner, an aviary with short grass proved to be an ideal parade ground for two Grey-winged Trumpeters *Psophia crepitans.* These birds also appear in displays. Education is firmly central to the culture of Paradise Park.

Our first view behind the scenes was of a pen of East African Grey-Crowned Cranes *Balearica regulorum gibbericeps.*

Back in the public domain, a level path brought us to an already partially leaved tree that contained a pair of Red Pandas *Ailurus fulgens.*

Tall trees and high fencing together sheltered an avenue of owl aviaries in which were housed a majestic Tawny Eagle *Aquila rapax,* paired up for breeding, a pair of mature Spectacled Owls *Pulsatrix perspicillata* (part of a European Breeding Scheme), a young pair of Great Grey Owls *Strix nebulosa* (from Paignton Zoo), and "Buzby" a Barn Owl *Tyto alba* bred at Paradise Park. Snowy Owls *Nyctea scandiaca* and a pair of the recently named Northern White-faced Owls (the northern race of the previously named White-faced Scops Owl *Ptilopsis leucotis* were also housed here. On a personal note I confess to being delighted to meet one of my favourites - a Tawny Frogmouth *Podargus strigoides* called “Fraggles”, hand-reared by Avicultural Society Council Member Geoff Masson and his staff at Paulton’s Park. Surprisingly, this crepuscular species was in active mode, seemingly recognising Geoff’s voice.

Another personal favourite, resplendent Hunting Cissas *Cissa chinensis,* were sensibly housed in an aviary containing greenery and sheltered from the direct sunlight that I have read is said to promote fading of the plumage.

The on-going construction of a purpose-built enclosure for Scarlet Ibis *Eudocimus ruber* showed great promise. It includes an especially chosen weather-resistant roofing material for the shelter. A couple of substantial pieces of Cornish granite will provide two of the several perching places near the eventual pond.

The proximal Hayle estuary (a local nature reserve) could be seen from our slightly elevated position.

By the path was a wall-mounted display case of about thirty eggs; all laid and collected at Paradise Park some years ago, now faded in colour, yet they still inform. The largest egg being that from a Wattled Crane *Bugeranus* (formerly *Grus*) *carunculatus* with the smallest one present labelled as “Bleeding Heart Dove”.

Passing on one side a long-run aviary for two Red-legged Seriemas *Cariama cristata* (again a demonstration species) and on the other side a row of aviaries made attractive to visitors and functional to occupants alike with thoughtfully placed vegetation, perches and feeding points. These aviaries held colourful Turacos *Musophagidae* and Pheasants *Phasianidae.* The essentially ground-living birds and the other species more at home in shrub vegetation all apparently mix well. The species held, some having been bred at Paradise Park and others present through exchange, included Temmink’s Tragopan *Tragopan temminckii*, a superbly clean-looking pair of Toco Toucan *Ramphastos toco,* a stunning pair of Great Blue Turaco *Corythaeola cristata,* Golden Pheasant *Chrysolophus pictus,* several Eurasian Hoopoe *Upupa epops,* Purple Swamphen *Porphyrio porphyrio* and almost inevitably, White-cheeked Turaco *Tauraco leucotis.*

Rounding a corner we made our way through a commanding entrance formed by two somewhat allegorical totem poles and into the aptly named Parrot Jungle. I recall visiting some years ago when David and some of his staff were battling the vegetation in amongst the tall trees to establish the initial layout of what has become an avicultural showpiece. A splendid initiative; if vocalization and significant breeding results are measures of enjoyment the occupants are certainly “at home”! There is a distinct feeling

"Buzby" a Barn Owl *Tyto alba* bred at Paradise Park and "Fraggles" a Tawny Frogmouth *Podargus strigoides*, which was hand-reared by Avicultural Society Council Member Geoff Masson and his staff at Paulton's Park.

of natural spaciousness - for the trees are so tall and the aviaries so large that at times only the occupants were noticed.

The conservation highlight in the Parrot Jungle is undoubtedly the dramatic detail David calmly related about critically endangered Blue-throated Macaws *Ara glaucogularis* that are so dependent on the Palm Trees *Attalea phalerata* of Bolivia. With probably only around 120 birds in the wild the species is in need of all the help that can be given if it is to survive. Thankfully there is hope. Through the WPT and Paradise Park six birds bred in captivity had been very recently flown to Bolivia. There they joined up with seven young from America and seven from Canada. A real international effort in conservation founded on aviculture and linked by a chain of co-operating authorities.

Other species present in the Parrot Jungle included, with again many individuals being bred in the park, Golden (Queen of Bavaria) Conure *Guaruba guarouba*, Hyacinth Macaw *Anodorhynchus hyacinthinus* and Eclectus Parrot *Eclectus roratus vosmarei.*

Within the large and sheltered Walled Gardens were a long terraced row of florally-fronted brick-built aviaries. We admired and discussed Illiger's Macaw *Primolius maracana,* the Roseate Cockatoo *Eolophus roseicapillus*, Citron-crested Cockatoo *Cacatua sulphurea citrinocristata,* delightful White-bellied Caiques *Pionites leucogaster xanthomeria,* a noisy gathering of "Rainbow Lorikeets" *Trichoglossus haematodus,* both Green-naped *haematodus* and Swainson's *moluccanus,* African Grey *Psittacus erithacus,* St Vincent Amazon *Amazona guildingii* with truly vivid blue and yellow tail feathering, Umbrella Cockatoo *Cacatua alba,* Moluccan Cockatoo *Cacatua moluccencis* and bright Golden Conures. Competing for our attention were loud calls issuing from an aviary some yards away that on investigation held a well-bonded pair of Red-tailed Black Cockatoos *Calyptorhynchus banksii.* The birds had been placed with Paradise Park after being hatched from eggs confiscated by Customs authorities.

Ever popular zoo exhibits of penguins, the park has the South American Humboldt species *Spheniscus humboldti,* which swam around or stood eyeing us from their circular enclosure equipped with "breeding tunnels" on an elevated upper zone. One incubating bird had chosen a site on gravel against the perimeter wall of the enclosure but was suitably sheltered from public gaze.

A series of well-planted aviaries holding Lories housed Dusky Lory *Pseudeos fuscata*, Yellow-streaked Lory *Chalcopsitta scintilla,* the rarely held Rajah Lory *Chalcopsitta atra insignis* and Duivenbode's Lory *Chalcopsitta duivenbodei* together made this section rather rewarding for lovers of these brush tongued parrots. Other species seen were Bali Starling *Leucopsar rothschildi*, Greater Hill Mynah *Gracula religiosa* and Von der Decken's Hornbill *Tockus deckeni.*

On passing through the escape-proofed entrance and entering the large Australasian enclosure it was understandably quiet, being pre-season for the public feeding of the Rainbow Lorikeets with nectar. There was however colour, for behind essential winter wind-proofing a well-appointed small aviary housed some Australian seed-eating birds. These included black-headed Gouldian Finches *Erythrura gouldiae* with well-developed young. Other Estrildids noticed were white-rumped and Bicheno Finch *Taeniopygia bichenovii bichenovii*, red-headed Star Finch *Neochmia ruficauda* and well-marked Spice Bird *Lonchura punctulata.* It was a pleasure to watch a small neat and tidy nominate Timor Zebra Finch *Taeniopygia guttata guttata;* a quite different bird from the long-domesticated Australian sub-species *Taeniopygia g. castanotis* that is regularly displayed at bird shows.

Continuing within the Walled Garden, the Tropical House was entered through a sliding door. In the vestibule were some smaller aviary flights. A delightful pair of Crested Wood Partridge *Rollulus rouloul* gently investigated their floor material. One flight held Bartlett's Bleeding-heart Doves *Gallicolumba crinigera*, whilst another contained a compatible mix of Australian Diamond Doves *Geopelia cuneata* and South-African Cape Doves *Oena capensis.* Diamond Firetails *Stagonopleura guttata* added a welcome bright dash of colour. Twenty or so colourful Spreo Starlings free-flew back and forth. Some fruit and other feedstuffs were positioned at arm-length away from viewers. Many high nest boxes were seen and some were being used.

Back outside it was noticeably cooler and the cloud cover had changed from white to grey. The sound of Black-cheeked Lovebirds *Agapornis nigrigensis* filled the air as they chattered away along a line of adjacent nest boxes positioned high in a very tall aviary. Though close to sea level, some Mountain Parakeets *Bolborhynchus aurifrons,* a species not often seen in public collections, were busying themselves. A welcome notice of advice on keeping a pet parrot was nearby - leaflets being available in the shop.

Within the robust greenery of the Lower Garden Aviary were occasional flashes of colour from Blue-crowned Laughingthrushes *Dryonastes courtoisi,* Pekin Robins *Leiothrix lutea* and Snowy-crowned Robin Chats *Cossypha niveicapilla* whilst a slowly strutting male Himalayan Monal *Lophophorus impejanus* paraded his iridescent spectrum before our admiring eyes.

In the adjacent Higher Garden Aviary were two more aviculturally well-known and colourful softbills, the Orange-headed Ground Thrush *Zoothera citrina* and White-rumped Shama *Copsychus malabarica.*

Waldrapp Ibis *Geronticus eremita* were perched high up in the breeze flowing through the uppermost level of an aviary they shared at ground level with a Purple Gallinule.

The garden setting was already colourful, even in April. One of the brightest sights being the paddling Caribbean Flamingos *Phoenicopterus ruber ruber.* The pond is sand-based to encourage growth of algae.

Final splashes of colour in the Walled Garden section were provided in separate aviaries by a somnolent Blue-winged Kookaburra *Dacelo leachii* and rather mobile Red-billed Magpies *Urocissa erythrorhynca.*

A pair of Red-billed Choughs *Pyrrhocorax pyrrhocorax* occupied an attractive aviary backed by a “cliff-face”.

The flying display was presented from a purpose designed and attractive staging. The commentary was delivered seemingly fresh and word-perfect by a young member of staff. We listened to a lively and informative description of the birds’ care and behaviour. My favourite moment was the Kookaburra that hung onto a rubber snake until he was judged to have “killed it” when he received a large green invertebrate snack.

The entire Free Flying Show rests on stimulus - rewards for behaviour - and closed with a well-trained Cockatoo carrying pound coins into a collection hole for the WPT. We thanked our guiding hosts David Woolcock and Alison Hales for their kindness and attention to our needs.

I wish to dedicate this personal account of the 2013 Avicultural Society visit to Paradise Park, Hayle, Cornwall, to the memory of Malcolm Ellis, our late Editor, who lived in the Duchy and whose presence, knowledge and humour would have further enriched the occasion.

DR. WOLFGANG GRUMMT

It was with the utmost sadness that I received the news that my great friend and zoo colleague Wolfgang Grummt had passed away following a fall at his home. We were in regular contact and I used to visit Tierpark Zoo most years and was shown round this marvellous zoo by my great friend. We first met following the Flamingo Conference at Slimbridge when he came to visit my own collection in the early 1970s. He has remained a loyal friend since that time.

I particularly remember visiting the Tierpark Zoo during a Zoo Walk programme for the BBC World Service, this I did for a number of years with Ken Jackson, the producer of this fine series. Wolfgang was an internationally known aviculturist, having worked as curator of birds from 1956 soon after the Zoo opened in 1955. He was widely travelled and during those difficult years of East German history, travelling to conferences was not easy. His contacts in America and particularly with San Diego Zoo facilitated animal exchanges to the benefit of both Zoos.

Pheasants were of particular interest to Wolfgang and he was Chairman of the German branch of the World Pheasant Association. His interest in pelicans, which he studied in depth, resulted in many young being raised over the years and he helped me enormously with my own collection and made many things possible.

Wolfgang will be sadly missed in the avicultural world and I personally have lost a very special friend. In the Avicultural Society he was a Vice President and a much valued colleague. The Society's visit to the two zoos in Berlin some years ago was greatly enjoyed by our members and Wolfgang gave us guided tours on all three days. I am sure that I will return to Tierpark many more times in the future as I have made many good friends there over the years, but it will never feel quite the same without my good friend to welcome me.

Christopher Marler

ARCTIC TERNS BREEDING IN THE NETHERLANDS MIGRATE VIA AUSTRALIA TO THE ANTARCTIC.

Arctic Terns *Sterna paradisaea* have an exceptionally long distance migration, annually travelling back and forth between the Arctic and the Antarctic. Birds from Greenland, Iceland and the USA were recently found to spend most of the non-breeding period in the Weddell Sea, a small part of the large Antarctic range of Arctic Terns. Based on ring recoveries and sightings of West European Arctic Terns in the Indian Ocean and Australian waters, it was expected that terns from The Netherlands (the southern limit of the breeding range) inhabit different Antarctic regions during the non-breeding season to their conspecifics from Greenland. To find out, geolocators were deployed on seven Arctic Terns captured on the nest in 2011 in The Netherlands. All birds were recaptured in 2012 and five devices yielded information on migration routes. The tracked terns spent on average 273 ± 7 days away from The Netherlands, and visited known staging areas in the North Atlantic and the Benguela Current, on both the outward and return journey. Similar tracks were observed in the terns from Greenland. However, hereafter the terns from The Netherlands moved to a previously unknown staging area in the central Indian Ocean, between 20–40°N and 65–100°E, and spent most of the non-breeding season in the Southern Ocean between 35–150°E. One bird migrated as far as New Zealand. Eventually, all five birds spent the Austral summer in Wilkes Land, Antarctica, before flying back to the breeding colonies with a small detour to the same North Atlantic staging area they visited on their southward migration. The total distance travelled in the course of the non-breeding period was approximately 90,000 km, which substantially exceeds previous estimates for this species. The study revealed new offshore staging areas and a yet unknown route through three different oceans, the longest bird migration described thus far.

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